# The Role of International Educational Trajectories for Migrants' Labor Market Integration in the United States


## Abstract

We explore the relative value of foreign education for migrants in the United States by analyzing labor market penalties associated with holding one or multiple foreign degrees and the role of place of education. In the context of the race for global talent; this paper critically examines the economic outcomes of migrants based on their international educational trajectories. We utilize longitudinal data on 109,156 migrants from the New Survey of College Graduates (NSCG) from 2003 to 2021, to investigate how highly educated migrants' origin, level of education, and diversity of international educational trajectories are compensated in the U.S. labor market. Preliminary results reveal significant earning penalties for both male and female migrants with foreign degrees. Whereas wage returns for male migrants with foreign degrees are about 17.3-point, the penalty increased to 30.1-point for female migrants. Furthermore, the wage penalty varied across region of degree acquisition, with female migrants with degrees from Latin America and the Caribbean experiencing the largest penalties of all groups.

## Introduction

A core issue noted by scholars in this literature seeks to unveil the less-than-perfect transferability of migrants' degrees and human capital (Chiswick & Miller, 2009). When migrants move to their destination country, they might find that their skills, work experience, knowledge, credentials, and degrees are not completely relevant or easily recognized by their adopted labor market (Chiswick & Miller, 2007). Previous empirical evidence in the field has generally found a wage penalty associated with foreign education relative to U.S education (Bratsberg & Ragan, 2002, Kaushal, 2011). Particularly relevant to this study is the paper by Arbeit and Warren (2013), which found female and male migrants to be less likely to hold employment closely related to their highest level of education, and a 17% wage gap between migrants with foreign degrees compared to all U.S educated migrants. Despite great contributions and paving the way for future research in the field, Arbeit and Warren's work along with most studies in the field have been unable to address a key complexity of degree transferability and contemporary migration patterns. Namely, the prevalence of multiple migratory trajectories of international migrants (Salamońska & Czeranowska, 2021), especially when it comes to the pathways of international students. We address this gap in the literature by focusing on comparing similar international educational trajectories over single degrees as singular snapshots of foreign education. By doing so, we extend the knowledge in the literature on the relative value of foreign degrees to consider the role of multiple educational trajectories.

Our aim and contributions are three-folded. On the one hand, we build from Arbeit and Warren's (2013) work with updated data to verify if results from 2003 still hold nowadays. Secondly, we include new covariates, controls, and employment outcomes to check the robustness of the results and propose additional forms of labor compensation as potential outcomes. For

instance, the addition of English proficiency in the dataset allows us to test the robustness of AW's work. Additionally, we propose fringe benefits, non-monetary forms of labor compensation, such as employer-based health care coverage, pension plan, and retirement plan, among many others, as additional forms of labor market outcomes. Lastly, we take a life-course perspective by utilizing longitudinal data from 2010 to 2021 and expanding AW's approach to consider international educational trajectories over snapshots of single degrees as reference points. More specifically, we conduct sequence analysis to identify the most common international educational trajectories and compare their outcomes with U.S educated migrants and natives with the same level of education. This is particularly relevant in the field of migration studies given that highly educated migrants and international students tend to be highly mobile and do not necessarily follow a linear migratory trajectories (Salamońska & Czeranowska, 2021). In light of this, only considering migrants' highest degree as a proxy for the entirety of the educational trajectory might be introducing bias to AW's original analysis. We seek to fill this gap by replicating AW's work and expanding their initial analysis to capture non-linear educational trajectories and their potential economic outcomes in the United States.

The present paper seeks to answer the following research questions. Is there a wage penalty associated with foreign education? Do migrants experience poorer labor market outcomes when they hold foreign degrees? When all else equal, does foreign education explain a wage differential between foreign educated and U.S educated migrants? Do more diverse international educational trajectories – holding degrees from multiple countries- translate into an economic premium? We investigate whether and to what extent educational trajectories with increasing Western compared to non-Western educational degrees are systematically better compensated, and for whom this premium is most profitable by considering migrants' legal status and country of origin. Lastly, we

extend previous research on the literature by considering three different outcomes, namely, job matching – the extent to which migrants' education matches their current job, wages, and fringe benefits. Lastly, we ask to what extent answers to these questions differ between men and women.

## Theoretical Framework

To better understand discrepancies in the labor market due to foreign education, we rely on two main theoretical approaches, namely, human capital theory (Becker, 1962, Frazis, 2002) and credential theory (Collins, 1971). Both theorical perspectives will allow us to consider processes through which levels of education translate into labor market outcomes and potential explanations for why we would expect to find discrepancies between foreign degrees relative to U.S degrees.

## Methods

We relied on longitudinal data from the New Survey of College Graduates (NSCG) from 2013 to 2021 to answer our research questions. The NSCG offers a wide range of information on college educated individuals in regards of their labor market outcomes, demographic characteristics, and most importantly for this study detailed record year, type, level, and place of education. The NSCG is conducted by the U.S census Bureau of Labor Statistics, sampling noninstitutionalized individuals younger than 76 and who held at least a bachelors' degree the previous year of the questionnaire. NSCG utilizes stratified random sampling designs to select participants defining their strata by race/ethnicity, sex, age, immigration and citizenship status, degree type, and occupation. Interviews were conducted by mail, with non-respondents being contacted later by phone or in-person.

**Sampling**

Our original sample consisted of 655,677 participants across all six waves. Given our interest in wages and employment outcomes, our sample was reduced by dropping unemployed individuals (109,564), participants younger than 23 (18), some observations with inconsistent citizenship statuses and place of birth (113), and dropping U.S born individuals (367,360). Our final sample consisted of 120,207 participants in total across all years, with 38,26% or 45,991 female and the remaining 61,74% or 74,216 male migrants (Table 1).

**Preliminary Results**

Table 1 shows the initial analysis  divided into four section. Columns 1 and 2 focus on male foreign workers, with column 1 excluding demographic and selection controls covariates. and column 2 including these. Columns 3 and 4 focus on female workers with the same dynamics for controls as the first two columns. In line with AW's results, we observe that foreign education (taking foreign a conglomerate of all regions into a single "foreign" category) is negatively associated for both men and women across all columns with migrants' wages. Our results show that, once controls are included, male migrants experience a 0.17-point penalty on their wages from foreign education, however, the effect is much larger for female migrants who experience a 0.29-point wage penalty. Similarly to AW's results, who found a 0.085-point penalty for both genders, our results show a similar pattern of wage penalty from foreign education. Figure 1 shows the predictive margins of model 2 (table 1) for both female and male migrants. Results shows that the gap in the relative value of foreign education for both migrant men and women remains relatively constant across survey.

In order to better understand the role of place of education, we investigate to what extent the relative value of foreign education varies based on the region of migrants' highest degree acquisition. Figure 2 shows the plotted coefficients of our second analysis where we regressed the log of hourly wages on region of highest degree. Results show that the value of foreign education is relatively weaker than U.S education across most regions, with the exception of North America (Canada) and Europe, but only for men. Additionally results explore the role of having multiple rather than single foreign degrees, and later on this paper will explore the interplay between number of foreign degrees as well as place of education.

**Table 1**

*Wage effects of holding a foreign degree and other human capital characteristics*

| | Male | | Female | |
|---|---|---|---|---|
| | (1) | (2) | (1) | (2) |
| Foreign Degree | -0.18(.03) *** | -0.17(.03)*** | -0.30(.04) *** | -0.29(.04) *** |
| **Highest Degree Type [BA]** | - | - | - | - |
| Master's | 0.29(.02) *** | 0.23(.02) *** | 0.26(0.04) *** | 0.21(.04) *** |
| Doctorate | 0.42(.03) *** | 0.31(.04) *** | 0.42(.04) *** | 0.33(.04) *** |
| Professional | 0.56(.06) *** | 0.50(.05) *** | 0.46(.05) *** | 0.43(0.05) *** |
| **Time Variables** | | | | |
| Years since most recent degree | 0.02(0.002) *** | 0.02(.001) *** | 0.02(.003)*** | 0.02(.003) *** |
| Years since most recent degree squared | -0.06(.01) *** | -0.05(.03) *** | -0.09(.02) *** | -0.09(.02) *** |
| Years in the United States | 0.09(.03) *** | 0.07(.02) *** | 0.05(.02) *** | 0.09(.02) *** |
| **Visa type when first entered [Permanent Resident Reference]** | - | - | - | - |
| Temporary to work | 0.49(.03)*** | 0.45(.03)*** | 0.33(.05)*** | 0.28(.05)*** |
| Temporary to study | 0.11(.03)*** | 0.12(.03)*** | 0.12(.04)*** | 0.07(.04) |
| Temporary Dependent | -0.02(.03) | -0.003(.03) | 0.02(.03) | -0.01(.03) |

**Survey Year [2003]**

| | | | | |
|---|---|---|---|---|
| 2010 | -0.15(.03)*** | -0.14(.03)*** | -0.06(.05) | -0.08(.05) |
| 2013 | -0.17(.03) *** | -0.15(.03) *** | -0.28(.04)*** | -0.29(.04) *** |
| 2015 | -0.09(.03) *** | -0.08(.03) *** | -0.20(.04)*** | -0.18(.04) *** |
| 2017 | -0.09(0.3) *** | -0.06(0.3) ** | -0.15(0.4)*** | -0.13(0.4) ** |
| 2019 | -0.03(.03) | -0.01(.03) | -0.08(.04) | -0.07(.04) |
| 2021 | 0.09(.03) *** | 0.05(.03) ** | -0.21(.04) *** | -0.21(.04) *** |
| Demographic, human capital, employment characteristics, parents education, and field of study controls | No | Yes | No | Yes |
| Constant | 3.56(.06) *** | 3.51(.09) *** | 3.54(.09)*** | 3.62(.11) *** |
| Adjusted R2 | 0.15 | 0.19 | 0.10 | 0.12 |
| N | 74,216 | 74,216 | 45,991 | 45,991 |

Notes: Models were estimated using the regress command in Stata and include population weights. Sample restricted to immigrants aged 23-75 who have never been retired and lived in the US in 2003, 2010, 2013, 2015, 2017, 2019, and 2021 respectively. Additional controls include field of study highest degree, citizenship status, occupation, employer's region, company's size, supervision tasks at work, marital status, and parent's level of education.

*** p<0.001

** p<0.01

* p<0.05

Figure 1

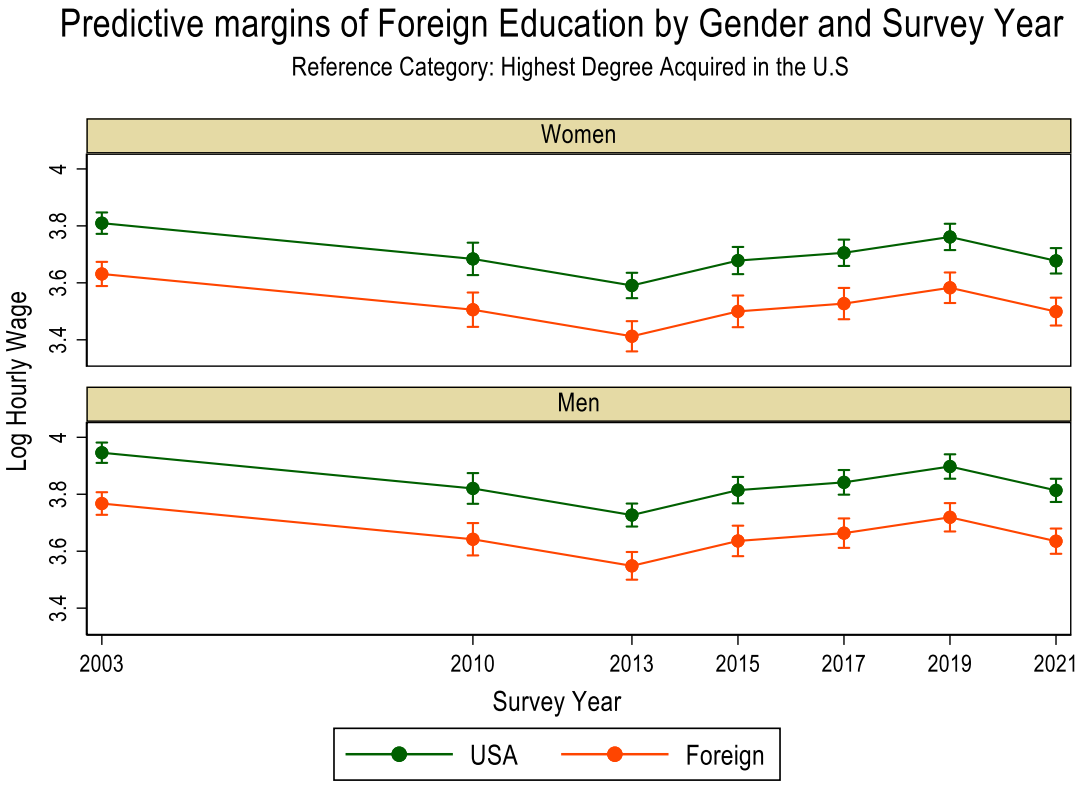
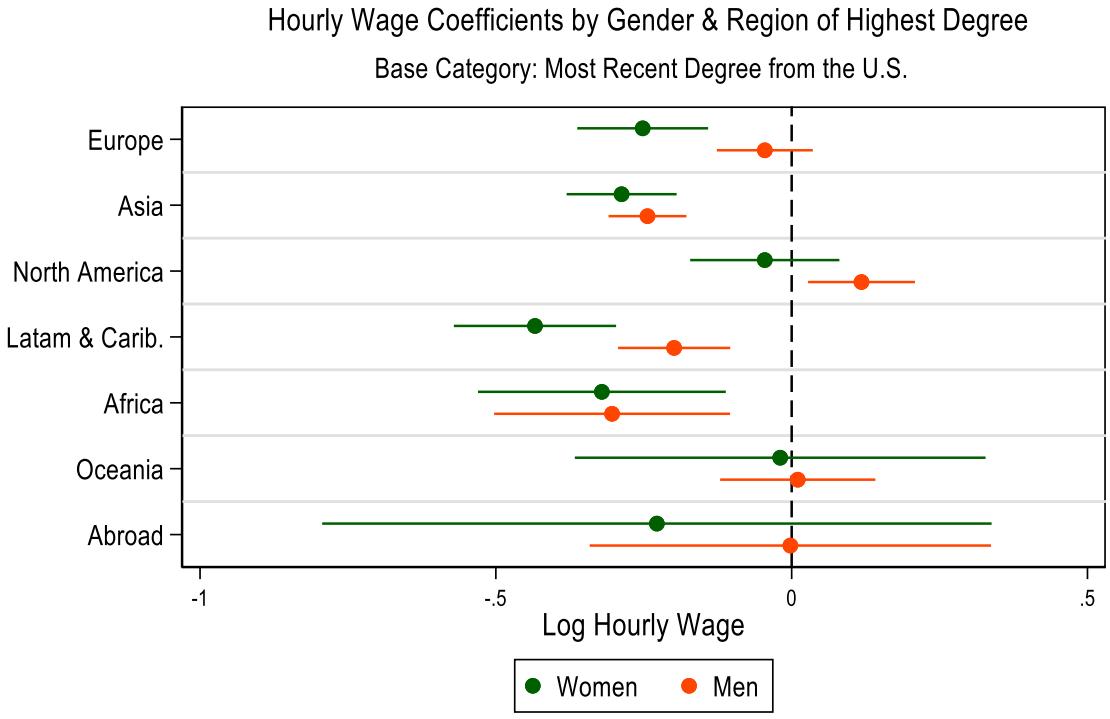



Figure 2




Note: Controls for age, age squared, age at migration, time since degree, marital status, parents education, year fixed-effects , most recent degree characteristics, citizenship, visa status, work experience, employer region, occupation, job-relateness, and job supervision.